Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

ENTERED

30 JAN 2003

Mr. Steve Zappe
Hazardous Waste Permits Program
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2905 E. Rodeo Park Drive, Bldg. 1
Santa Fe, NM 87505

Subject: Transmittal of Approved Waste Stream Profile Form for Rocky Flats Environmental Technology Site, Waste Stream Profile Form Number RF011.01-Fireblankets and Insulation

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Rocky Flats Environmental Technology Site (RFETS), Waste Stream Profile Form RF011.01. Enclosed is a copy of the approved form as required by Section B-4(b)(1) of the WIPP Hazardous Waste Facility Permit No. NM4890139088-TSDF.

If you have any questions on this matter, please contact me at (505) 234-7357 or (505) 361-0265.

Sincerely,

Kerry W. Watson
CBFO Assistant Manager
Office of National TRU Program

Enclosure

cc: w/o enclosure
J. Kieling, NMED
C. Walker, TechLaw
J. Bennett, WTS
P. Roush, WTS
L. Greene, WRES
S. Calvert, CTAC
CBFO M&RC

CBFO:NTP:KWW:VW:03-1048:UFC:5822

030128

If you have any questions regarding this report, please contact me by phone at (505) 428-2528.
Sincerely,

Sandra Y. Martin
Manager
Compliance & Technical Assistance Program

SYM: sym

cc: Rohde May Keller McNamara Architecture
File: Reading

WASTE STREAM PROFILE FORM

Waste Stream Profile Number: RF011.01
Generator site name: RFETS Technical contact: Eric D'Amico
Generator site EPA ID: CO7890010526 Phone number: (303) 966-5362
Date of audit report approval by NMED: March 9, 2000 as amended February 7, 2001; June 5, 2001; April 8, 2002; August 20, 2002 and August 29, 2002
Title, version number, and date of documents used for WAP certification: Rocky Flats Environmental Technology Site TRU Waste Characterization Program Quality Assurance Project Plan, 95-QAPjP-0050, Revision 6, March 2002. Transuranic (TRU) Waste Management Manual, Revision 5, 1-MAN-008-WM-001, May 2002. Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, Revision 0, May 2002.
Did your facility generate this waste? ☑ Yes ☐ No If no, provide the name and EPA ID of the original generator:

Waste Stream Information[1]

WIPP ID: RF TR0334, RF TR0438, RF TT0438
Summary Category Group: S5000 Waste Matrix Code Group: Inorganic Nonmetal Waste
Waste Stream Name: Fireblanket/TRU, and Insulation/TRU[3]
Description from the WTWBIR: This waste stream is contaminated insulation.
Defense TRU Waste: ☑ Yes ☐ No
Check one: ☑ CH ☐ RH Number of SWBs N/A Number of Drums 302 Number of Canisters N/A
Batch Data Report numbers supporting this waste stream characterization: See Table 7.
List applicable EPA Hazardous Waste Codes[2]: None
Applicable TRUCON Content Codes: RF 122A, RF 122B, RF 122D, RF 122E, RF 122F, RF 122H, RF 122I, RF 122N, and RF 122T

Acceptable Knowledge Information[1]

Required Program Information

- Map of site: Reference List, No. 3
- Facility mission description: Reference List, No. 3
- Description of operations that generate waste: Reference List, Nos. 1, 2, 3, 6
- Waste identification/categorization schemes: Reference List, Nos. 8, 9
- Types and quantities of waste generated: Reference List, Nos. 1, 2, 3, 6
- Correlation of waste streams generated from the same building and process, as appropriate: Reference List, Nos. 1, 2, 6
- Waste certification procedures: Reference List, No. 5

Required Waste Stream Information

- Area(s) and building(s) from which the waste stream was generated: Reference List, Nos. 1, 2, 6
- Waste stream volume and time period of generation: Reference List, Nos. 4, 6
- Waste generating process description for each building: Reference List, Nos. 1, 2, 6
- Process flow diagrams: Reference List, Nos. 1, 2
- Material inputs or other information identifying chemical/radionuclide content and physical waste form: Reference List, Nos. 1, 2, 3, 6
- Which Defense Activity generated the waste: (Check one) Reference List, No. 3

☑ Weapons activities including defense inertial confinement fusion
☐ Verification and control technology
☐ Defense nuclear waste and material by products management
☐ Defense nuclear waste and materials security and safeguards and security investigations
☐ Naval Reactors development
☐ Defense research and development
☐ Defense nuclear materials production

Reviewed for Classification/UCNI
By: Vivian S. Sendelweck
Date: 21 Jan 2003 UNU
Approved for Public Release

Supplemental Documentation: See the References section in the Acceptable Knowledge Summary (attached) for additional backup documentation associated with this waste stream.

- Process design documents: Note 4
- Standard operating procedures: Note 4
- Safety Analysis Reports: Note 4
- Waste packaging logs: Note 4
- Test plans/research project reports: Note 4
- Site data bases: Note 4
- Information from site personnel: Note 4
- Standard industry documents: Note 4
- Previous analytical data: Note 4
- Material safety data sheets: Note 4
- Sampling and analysis data from comparable/surrogate Waste: Note 4
- Laboratory notebooks: Note 4

Sampling and Analysis Information[1]

[*For the following, when applicable, enter procedure title(s), number(s) and date(s)*]

☑ Radiography: Reference List, Nos. 14, 15, 19
☑ Visual Examination: Reference List, Nos. 12, 13, 16, 17, 18
☑ Headspace Gas Analysis
VOCs: Reference List, No. 7, 11
Flammable: Reference List, No. 7, 11
Other gases (specify): N/A
☐ Homogeneous Solids/Soils/Gravel Sample Analysis **(Tables 1, 3, 4, and 5 are not applicable and not included)**
Total metals: N/A
PCBs: N/A
VOCs: N/A
Nonhalogenated VOCs: N/A
Semi-VOCs: N/A
Other (specify): N/A

Waste Stream Profile Form certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Signature of Site Project Manager	G. A. O'Leary, Manager TRU Programs Printed Name and Title	1/21/03 Date
C. L. Ferrera Signature of Site QA Officer	C. L. Ferrera, TWCP Site QAO Printed Name and Title	1/21/03 Date

NOTE

1) Use back of sheet or continuation sheets, if required.
2) EPA Hazardous Waste Codes were determined using acceptable knowledge and confirmed using headspace gas sampling and analysis (see attached Characterization Information Summary documenting this determination).
3) The "Fireblanket/TRU" and "Insulation/TRU" waste streams specified in the WTWBIR were combined into a single waste stream and given the new waste stream name of "TRU Insulation Debris Waste" (see attached Acceptable Knowledge Summary).
4) See the References section in the Acceptable Knowledge Summary (attached) for additional backup documentation associated with this waste stream.

REFERENCE LIST

1. Backlog Waste Reassessment Baseline Book, Waste Form 53, Fire Blanket and Insulation, September 2002.
2. Waste Stream and Residue Identification and Characterization (WSRIC) Version 7, and archived versions.
3. RFETS TRU Waste Acceptable Knowledge Supplemental Information, RF/RMRS-97-018, Revision 10, August 2002.
4. Waste and Environmental Management System (WEMS) database.
5. Transuranic Waste Certification, PRO-X05-WC-4018, Revision 4, May 2002.
6. Acceptable Knowledge TRU/TRM Waste Stream Summaries, RMRS-WIPP-98-100, Section 6.11, Revision 15, January 2003
7. GC/MS Determination of Volatile Organics Waste Characterization, L-4111-X, January 2002.
8. Waste Characterization, Generation, and Packaging, 1-PRO-079-WGI-001, Revision 4, May 2002.
9. Waste Characterization Program Manual, 1-MAN-036-EWQA-Section 1.6.1, Revision 3, May 2002.
10. Interoffice Memorandum from Thomas R. Gatliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile RF011.01 (TRU Insulation Debris Waste) Lot 1, TRG-161-02, December 17, 2002.
11. Headspace Gas Sampling and Analysis Using An Automated Manifold, L-4231-F, March 2002.
12. Visual Examination for Confirmation of RTR, 4-H80-776-ASRF-007, Revision 5, June 2001.
13. TRU/TRM Waste Visual Verification (V^2) and Data Review, PRO-1031-WIPP-1112, Revision 1, June 2002.
14. Real-Time Radiography Testing of Transuranic and Low-Level Waste, 4-W30-NDT-00664, Revision 5, October 2001.
15. Real-Time Radiography Testing of Transuranic and Low-Level Waste in Building 569, 4-I19-NDT-00569, Revision 6, January 2002.
16. Visual Examination for Confirmation of RTR, PRO-1471-VE-771, Revision 0, November 2001.
17. Residue Repack, Building 371; PRO-544-SALTREPACK-371, Revision 5, January 2002.
18. Combustible Residue Repackaging, PRO-823-REPACK-371, Revision 1, March 2001.
19. Mobile Real-Time Radiography Testing of Transuranic and Low-Level Waste, PRO-1520-Mobile-RTR, Revision 0, May 2002.

Form A
Reconciliation with Data Quality Objectives

I certify by signature (below) that sufficient data have been collected to determine the following Program-required waste parameters:

WSPF # RF011.01

Item	Check Box[a]	Reconciliation Parameter
1	✓	Waste Matrix Code as reported in WEMS.
2	✓	Waste Material Parameter Weights for individual containers as reported in WEMS.
3	✓	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	✓	Container mass and activities of each radionuclide of concern as reported in WEMS.
5	✓	Each waste container of waste contains TRU radioactive waste.
6	✓	Mean concentrations, UCL_{90} for the mean concentrations, standard deviations, and the number of samples collected for each VOC in the headspace gas of waste containers in the waste stream/waste stream lot.
7	NA	Mean concentrations, UCL_{90} for the mean concentrations, standard deviations, and number of samples collected for VOCs in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
8	NA	Mean concentrations, UCL_{90} for the mean concentrations, standard deviations, number of samples collected for SVOCs in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
9	NA	Mean concentrations, UCL_{90} for the mean concentrations, standard deviations, and number of samples collected for metals in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
10	NA	Sufficient number of samples was taken to meet statistical sampling requirements.
11	✓	Only validated data were used in the above calculations, as documented through the site data review and validation forms and process.
12	✓	Waste containers were selected randomly for sampling, as documented in site procedures.
13	✓	The potential flammability of TRU waste headspace gases.
14	✓	Sufficient number of waste containers was visually examined to determine with a reasonable level of certainty that the UCL_{90} for the miscertification rate is less than 14 percent.
15	✓	Whether the waste stream exhibits a toxicity characteristic (TC) under 40 CFR Part 261, Subpart C.
16	✓	All TICs were appropriately identified and reported in accordance with the requirements of the WIPP WAP prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
17	✓	The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WIPP WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
18	✓	The RTLs (i.e., PRQLs) for all analyses were met prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
19	✓	Whether the waste stream can be classified as hazardous or non-hazardous at the 90-percent confidence limit.

[a] Check (✓) indicates that data or acceptable knowledge are sufficient to determine the waste parameters and that the waste parameters have been reported in the listed document or database. N/A indicates parameter does not apply to waste stream. NO indicates data are insufficient.

Signature of Site Project Manager | G. A. O'Leary, Printed Name | 1/21/03, Date

Data Summary Report—Table 2: Headspace Gas Summary Data

WSPF # RF011.01

Sampling and Analysis Method (check one):

☑ 100% Sampling ☐ Reduced Sampling

2A

ANALYTE[a]	# Samples[b]	Transform Applied[c]	Normality Test (Pass/Fail)[d]	Min. Sample Size[d]	Mean[d] (ppmV)	UCL_{90}[d] (ppmV)	RTL[e] (ppmV)	EPA Code[f]
1,1-Dichloroethane	0				0.58		NA	
1,2-Dichloroethane	0				0.73		10	
1,1-Dichloroethylene	0				0.70		10	
cis-1,2-Dichloroethylene	0				0.62		NA	
trans-1,2-Dichloroethylene	0				0.72		NA	
1,1,2,2-Tetrachloroethane	0				0.65		10	
1,1,1-Trichloroethane	1	Log	Fail[h]	0.0081	0.6766	0.7349	10	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0				0.69		10	
1,2,4-Trimethylbenzene	0				0.68		NA	
1,3,5-Trimethylbenzene	0				0.67		NA	
Acetone	1	None	Fail[h]	NA	7.204	7.621	100	
Benzene	2	Log	Fail[h]	NA	0.8323	0.9116	10	
Bromoform	0				0.80		NA	
Butanol	0				5.85		100	
Carbon disulfide	0				0.65		10	
Carbon tetrachloride	0				0.80		10	
Chlorobenzene	0				0.54		10	
Chloroform	1	Log	Fail[h]	0.0190	0.7741	0.8581	10	
Cyclohexane	0				0.54		NA	
Ethyl benzene	0				0.67		10	
Ethyl ether	0				0.62		10	
Methanol	0				7.74		100	
Methyl ethyl ketone	0				5.85		100	
Methyl isobutyl ketone	0				6.06		100	
Methylene chloride	1	Log	Fail[h]	0.0061	0.6666	0.7364	10	
o-Xylene	0				0.66		10	
m,p-Xylene	0				1.29		10	
Tetrachloroethylene	0				0.67		10	
Toluene	25	Log	Fail[h]	0.0383	1.982	2.330	72.02[g]	
Trichloroethylene	0				0.60		10	

NOTES:

[a] A total of 47 samples were collected and analyzed. Analysis was performed for all analytes identified. All but one of the 47 samples were not composited. The one composited sample was composited with two other samples that were collected from containers that were subsequently determined to be low level waste that will not be disposed of at WIPP.

Data Summary Report—Table 2: Headspace Gas Summary Data (continued)

NOTES (continued):

[b] Identifies the number of samples in which the associated analyte was detected.
[c] Identifies the type of data transformation used, if applicable, to achieve (or better achieve) a normal probability distribution of the data.
[d] Statistics calculated based on using ½ the MDL for less-than-detectable observations with data transformation as identified (Reference 10). With no detectable concentrations, listed mean reflects average of one-half of reported MDL values for analyte and calculation of standard deviation and UCL_{90} values is not meaningful. With fewer than five detectable concentrations, calculated values for UCL_{90} are subject to potentially large relative error.
[e] RTLs for headspace gas analysis results correspond to the analyte PRQL for analytes that are hazardous waste constituents. "NA" means the analyte is not a hazardous waste constituent and so has no associated regulatory threshold.
[f] No entry indicates no associated EPA Code assigned to the waste stream based on headspace analysis.
[g] Limit used for EPA Hazardous Waste Code evaluation for toluene (Reference No. 3).
[h] Data set (with or without transformation) did not pass the test for normality. The data set that most approximated a normal distribution was used for computation of statistics.

Data Summary Report—Table 2: Headspace Gas Summary Data (continued)

WSPF # RF011.01

2B

TENTATIVELY IDENTIFIED COMPOUND	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC
No TICs identified in the headspace gas samples for the waste stream lot.		

Did the data verify the acceptable knowledge? ☑ Yes ☐ No

Data as reported in Data Summary Report – Table 2 confirm acceptable knowledge in that no toxicity characteristic volatile organic or F-listed solvent EPA codes are applicable.

If not, describe the basis for assigning the EPA Hazardous Waste Codes:

Data Summary Report—Table 6: Exclusion of Prohibited Items

WSPF # RF011.01

The absence of prohibited items is documented through acceptable knowledge. Radiography or visual examination is performed on each container in this waste stream to verify the absence of the following prohibited items:

- Liquids
- Non-radionuclide pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes
- Explosives or compressed gases
- PCBs in concentrations greater than or equal to 50 ppm
- Waste exhibiting the characteristics of ignitability, corrosivity or reactivity
- Non-mixed hazardous wastes

Data Summary Report—Table 7: Correlation of Container Identification to Batch Data Reports

WSPF # RF011.01

Package No.	Radioassay Data Package	Headspace Sample Batch No.	Headspace VOC Data Package	RTR Data Package[a]	VV Data Package[b]
D58801	569IP1-DP-042402A	02W0096	HGAS-DP-00304	6T-2061	
D59077	569IP1-DP-021402	02W0183	HGAS-DP-00366	5T-0288	
D59663	569IP1-DP-051502	02W0159	HGAS-DP-00275	6T-2061	
D63709	569IP1-DP-021402	02W0150	HGAS-DP-00251	6T-2098	
D65400	569IP1-DP-021802	02W0156	HGAS-DP-00260	5T-0288	
D65557	569IP1-DP-042402A	02W0095	HGAS-DP-00298	6T-2061	
D71208	569IP1-DP-051502A	02W0173	HGAS-DP-00285	6T-2060	
D81279	569IP1-DP-042402A	02W0093	HGAS-DP-00203	6T-2061	
D89828	569IP1-DP-021902	01W0198	HVOC-DP-00524	6T-1607	
D90572	CPN-99-015	02W0182	HGAS-DP-00247	6T-2070	
D91173	371TG1-DP-111501	02W0190	HGAS-DP-00271	6T-2075	
D91189	371TG1-DP-010301	03W0021	HGAS-DP-00376	6T-2082	
D91793	CIQ-99-021	01W0197	HVOC-DP-00523	6T-2016	
D93443	371TG1-DP-010401	02W0208	HGAS-DP-00333	6T-2119	
D94176	371TG1-DP-100801	02W0206	HGAS-DP-00314	6T-2119	
D94177	371TG1-DP-100801	02W0190	HGAS-DP-00271	6T-2072	
D94189	371TG1-DP-032301	02W0207	HGAS-DP-00323	6T-2119	
D94842	371TG1-DP-120701	02W0177	HGAS-DP-00291	6T-2083	
D95469	371TG1-DP-032301	02W0208	HGAS-DP-00333	6T-2119	
D95888	569IP1-DP-052802	02W0193	HGAS-DP-00280	5T-0303	
D96152	371TG1-DP-020101	02W0188	HGAS-DP-00252	6T-2075	
D96160	371TG1-DP-010302	02W0187	HGAS-DP-00299	6T-2075	
D96420	371TG1-DP-021601	02W0190	HGAS-DP-00271	6T-2072	
D97455	371TG1-DP-010901	02W0194	HGAS-DP-00300	6T-2076	
D97478	371TG1-DP-101701	02W0203	HGAS-DP-00317	6T-2119	
D97480	371TG1-DP-121401	03W0021	HGAS-DP-00376	6T-2081	
D97482	371TG1-DP-010901	02W0195	HGAS-DP-00281	6T-2076	
D97483	371TG1-DP-010901	02W0187	HGAS-DP-00299	6T-2075	
D97489	371TG1-DP-100801	02W0130	HGAS-DP-00286	6T-2072	
D97493	371TG1-DP-101501	02W0203	HGAS-DP-00317	6T-2119	
D97512	371TG1-DP-022101	02W0169	HGAS-DP-00278	6T-2072	
D97525	371TG1-DP-022001	02W0208	HGAS-DP-00333	6T-2119	
D98580	371TG1-DP-040801	02W0133	HGAS-DP-00295	6T-2072	
D98613	371TG1-DP-022101	02W0188	HGAS-DP-00265	6T-2072	
D99360	371TG1-DP-022101	02W0182	HGAS-DP-00251	6T-2098	
D99384	371TG1-DP-072501	02W0087	HGAS-DP-00364		WC-DP-018
D99524	371TG1-DP-020801	02W0194	HGAS-DP-00300	6T-2077	
DB4741	569IP1-DP-121401A	02W0092	HGAS-DP-00297	5T-0275	

Data Summary Report—Table 7: Correlation of Container Identification to Batch Data Reports (continued)

Package No.	Radioassay Data Package	Headspace Sample Batch No.	Headspace VOC Data Package	RTR Data Package[a]	VV Data Package[b]
DB6027	CIQ-01-047	02W0094	HGAS-DP-00214	6T-1801	
DC1139	371TG1-DP-120701	02W0149	HGAS-DP-00228	6T-2082	
DC3630	371TG1-DP-082001	02W0087	HGAS-DP-00338		WC-DP-047
DC3632	371TG1-DP-082101	02W0087	HGAS-DP-00364		WC-DP-047
DC3637	371TG1-DP-082201	02W0040	HGAS-DP-00315		WC-DP-048
DC3498	371DC1-DP-090601	02W0082	HGAS-DP-00311		WC-DP-046
DC3790	371DC1-DP-090601	02W0182	HGAS-DP-00247		WC-DP-052
DC3813	371DC1-DP-090501	02W0108	HGAS-DP-00232		WC-DP-055
DC3816	371DC1-DP-090501	02W0177	HGAS-DP-00291		WC-DP-055

NOTES:

[a] No entry means the package was visually verified (using the visual examination technique) prior to or at the time of packaging/repackaging. For those packages that were examined using radiography, none were selected for visual examination to confirm radiography.

[b] No entry means that the package was not visually verified (using the visual examination technique) prior to or at the time of packaging/repackaging.

Acceptable Knowledge Summary

WSPF # RF011.01

RMRS-WIPP-98-100, Acceptable Knowledge TRU/TRM Waste Stream Summaries, Section 6.11, TRU Insulation Debris Waste (attached).

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-99

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name | 6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

GENERATOR

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.					
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

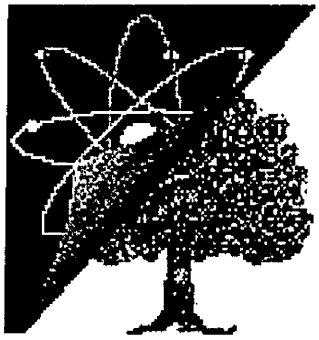
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

EPA Form 8700-22 (Rev. 10-94) Previous editions are obsolete.

LQG/TSD Manifest exception reporting
Check w/TSD for status of waste day 35
File exception report after 45 days

SQG File exception report within 60 days



Rocky Flats Environmental Technology Site

ACCEPTABLE KNOWLEDGE INFORMATION

ACCEPTABLE KNOWLEDGE TRU/TRM WASTE STREAM SUMMARIES

RMRS-WIPP-98-100

Section 6.11

TRU Insulation Debris Waste

Profile No. RF011.01

Revision 16

Reviewed for Classification/UCNI
By: Unclassified Not UCNI
Reference Exemption Number CEX-032-00
Date: September 11, 2000

Approval signatures in Site Document Control history file

6.11 TRU Insulation Debris Waste

Profile No. RF011.01

Acceptable Knowledge Waste Stream Summary

Waste Stream Name: TRU Insulation Debris Waste

Generation Buildings: Buildings 371, 374, 440, 707, 771, 776, 777 and 779 [5,6,10]

Waste Stream Volume (Retrievably Stored): 153 55-gallon drums [5,6]

Generation Dates (Retrievably Stored): July 1985 – September 2001[5,6]

Waste Stream Volume (Newly Generated): 130 55-gallon drums [5,6]

Generation Dates (Newly Generated): October 2001 – November 2002[5,6]

Waste Stream Volume (Projected): 19 55-gallon drums[7]

Generation Dates (Projected): November 2002 – February 2006[7]

TRUCON Content Codes: RF 122A, RF 122B, RF 122D, RF 122E, RF 122F, RF 122H, RF 122I, RF 122N, and RF 122T [1]

Process Knowledge Demonstrates Flammable VOCs in Headspace < 500 ppm: Yes (see Section 6.11.6)

6.11.1 Transuranic Waste Baseline Inventory Report Information [2]

WIPP Identification Numbers: RF-TR0334, RF-TR0438, and RF-TT0438

Summary Category Group: S5000 Waste Matrix Code Group: Inorganic Nonmetal Waste

Waste Matrix Code: S5129 Waste Stream Name: Fireblanket/TRU, and Insulation/TRU

Description from the TWBIR: This waste stream is contaminated insulation.

NOTE: The "Fireblanket/TRU" and "Insulation/TRU" waste streams specified in the TWBIR were combined into a single waste stream because Fireblanket (IDC 334) is an insulation material that was generated from similar processes and is similar to the physical and chemical characteristics of other insulation waste (IDC 438).

6.11.2 Waste Stream Description

This waste is generated by similar activities, and is similar in material, physical form and hazardous constituents and, therefore, is considered a single waste stream. TRU insulation debris consists of fireblanket (IDC 334) and insulation (IDC 438). Table 6.11-1 presents the waste matrix codes and waste material parameters for insulation debris.[3]

Table 6.11-1, Insulation Debris Waste Description

IDC	IDC Description	Waste Matrix Code	Waste Material Parameters	Weight % (Average)
334	Fireblanket	S5129, Unknown/Other Inorganic Nonmetal Debris	Other Inorganic Materials	100%
438	Insulation	S5129, Unknown/Other Inorganic Nonmetal Debris	Other Inorganic Materials	81%
			Plastics[1]	14%
			Cellulosics[2]	5%

Notes:

1. The average weight percent of plastic materials is based on RTR and includes packaging material (e.g., round bottom liner).
2. The average weight percent of cellulosic materials is based on RTR and includes packaging material (e.g., fiberboard liner).

IDC 334, Fireblanket: Fireblanket is a high temperature resistant material that is part of the fire safety equipment provided in all process buildings.[4, 8, 11,13]

IDC 438, Insulation: Insulation consists primarily of aluminum oxide and silicon dioxide material used in furnaces, boilers, piping, ceilings and walls, and heating and cooling systems. The waste may also include ceiling tiles, plasterboard, respirator cartridges, banding, paper, and gloves.[4,8,9,10,11,12,13,14,15]

6.11.3 Areas of Operation

TRU insulation debris is generated by the following defense operations.[3]

- Plutonium Production
- Plutonium Recovery
- Laboratory Operations
- Waste Treatment
- Research and Development
- Maintenance
- Waste and Residue Repackaging and Treatment
- Decontamination and Decommissioning Operations

6.11.4 Generation Processes

Insulation debris is generated by nearly every operation on site. Table 6.11-2 provides the title of each generating process along with the corresponding WSRIC building and process number. A description of each of these processes, process flow diagrams, and details of each insulation debris waste stream can be found in the *WSRIC Building Books* or *archived WSRIC files.*[8,9,10,11,12,13,14]

Table 6.11-2, Insulation Debris Waste Generation Process

Building	Process	Title
		Building 371
371	3	Repack Operations
371	4	Analytical Lab
371	6	PROV Vacuum System
371	15	General Waste (RMMA) and Deactivation
371	19	Caustic Waste Treatment System
371	20	Organic Contaminated Residue Treatment
371	21	Nitrate Contaminated Residue Treatment
371	22	Beryllium Parts Cleaning
371	23	Salt Residues Repack Project
371	27	Dry Residue Repack
371	30	Non-Regulated Radiological Process Ops (D&D)
371	31	Regulated Radiological Process Ops (D&D)
		Building 374
374	4	Evaporation
374	6	General Building Operations
		Building 440
440STOR	11	WIPP Characterization
		Building 707
707	1	Module A
707	2	Module K/X-Y Retriever
707	3	Module J
707	21	Testing – Module H
707	29	Utilities
707	30	Maintenance
707	35	Module B Through H
707	36	Deactivation/Decon/Decommissioning (D\3)
707	41	Dry Residue Repack
707	45	Waste Repackaging
		Building 771
771	26	Plutonium Metallurgy
771	29	Maintenance
771	35	General Building Waste (RMMA)
771	56	Set 46, Decontamination & Decommissioning
771	62	Support, Decontamination & Decommissioning
771	63	Waste Drum & Crate Repackaging Operation
771	64	D&D Fixed Equipment, Glovebox and Tank Removal

Building	Process	Title
		Building 776/777
776	1	Pyrochemical Processing
776	2	Size Reduction
776	3	Advanced Size Reduction Facility
776	9	Maintenance – Pipe Shop
776	14	General Building Waste
776_777	12	Waste Repackaging
776_777	6	General Building Waste and Decommissioning
		Building 779
779	28	Utilities
779	37	General Maintenance and Deactivation
779	40	Deactivation, Decontamination, and Decommissioning
779	43	Building D&D Activities

6.11.5 RCRA Characterization

TRU Insulation Debris Waste is not characterized as mixed waste. Table 6.11-3 presents the chemical constituent codes (CCCs) and EPA Hazardous Waste Numbers associated with the BWR Subpopulations and WSRIC Waste Streams assigned to TRU insulation debris waste containers. Supporting characterization information is provided in the *BWR Baseline Book, WSRIC Building Book*, and *WSRIC archived files*.[4,8,9,10,11,12,13,14,15]

Table 6.11-3, Insulation Debris Waste RCRA Characterization

IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
		Fireblanket			
0334		371 - 27 - 7	00	70	None
0334		707 - 1 - 48	00	70	None
0334		707 - 36 - 175	00	70	None
0334		707 - 41 - 7	00	70	None
0334		776_777 - 6 - 185	00	70	None
0334		776_777 - 6 - 186	00	0770	None
0334	53A		00	00	None
		Insulation			
0438		371 - 15 - 92	00	00	None
0438		371 - 15 - 108	00	70	None
0438		371 - 15 - 133	00	70	None
0438		371 - 20 - 19	00	70	None
0438		371 - 20 - 20	00	00	None
0438		371 - 21 - 18A[2]	00	00	None
0438		371 - 21 - 21A[2]	00	70	None
0438		371 - 27 - 12	00	00	None
0438		371 - 27 - 31	00	70	None
0438		371 - 30 - 0	N/A[1]	N/A[1]	N/A[1]
0438		371 - 31 - 0	N/A[1]	N/A[1]	N/A[1]
0438		374 - 4 - 23	00	00	None

IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
0438		374 - 6 - 20	00	00	None
0438		440STOR - 11 - 23	00	00	None
0438		440STOR - 11 - 26	00	70	None
0438		707 - 1 - 40	00	00	None
0438		707 - 1 - 41	00	00	None
0438		707 - 1 - 66	00	70	None
0438		707 - 2 - 29	00	32	None
0438		707 - 3 - 6	00	00	None
0438		707 - 3 - 7	00	00	None
0438		707 - 30 - 29	00	70	None
0438		707 - 30 - 7	00	00	None
0438		707 - 35 - 15	00	32	None
0438		707 - 36 - 6	00	00	None
0438		707 - 36 - 15	00	32	None
0438		707 - 36 - 50	00	0770	None
0438		707 - 36 - 88	00	00	None
0438		707 - 36 - 151	00	0732	None
0438		707 - 36 - 200	00	07	None
0438		707 - 36 - 234	00	70	None
0438		707 - 36 - 236	00	00	None
0438		707 - 41 - 12	00	00	None
0438		707 - 41 - 35	00	70	None
0438		707 - 45 - 6	00	00	None
0438		771 - 35 - 75	00	70	None
0438		771 - 35 - 76	00	70	None
0438		771 - 56 - 0	N/A[1]	N/A[1]	N/A[1]
0438		771 - 62 - 0	N/A[1]	N/A[1]	N/A[1]
0438		771 - 63 - 12	00	00	None
0438		771 - 64 - 0	N/A[1]	N/A[1]	N/A[1]
0438		776 - 9 - 8	00	00	None
0438		776_777 - 6 - 27	00	00	None
0438		776_777 - 6 - 117	00	70	None
0438		776_777 - 6 - 122	00	70	None
0438		776_777 - 6 - 167	00	0770	None
0438		776_777 - 6 - 179	00	07	None
0438		776_777 - 6 - 209	00	0770	None
0438		779 - 40 - 14	00	32	None
0438		779 - 43 - 0	N/A[1]	N/A[1]	N/A[1]
0438		D&D - 3 - 23	00	00	None
0438		D&D - 3 - 25	00	70	None
0438		D&D - 3 - 87	00	24	None
0438		D&D - 3 - 102	00	70	None
0438		D&D - 3 - 103	00	70	None
0438		D&D - 3 - 125	00	70	None
0438		D&D - 3 - 126	00	70	None
0438		D&D - 3 - 128	00	70	None
0438		D&D - 3 - 129	00	70	None
0438		D&D - 3 - 151	00	07	None
0438		D&D - 3 - 154	00	0770	None
0438	53B		00	70	None
0438	53C		00	00	None

IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
0438	53F		00	70	None
0438	53I		00	70	None
0438	53K		00	00	None
0438	53M		00	70	None
0438	53P		00	70	None

Note:

1. WSRIC waste streams with an output number of "0" refer to a D&D process, which does not include specific outputs. The specific outputs associated with the D&D process are identified by a D&D WSRIC waste stream that is also assigned to the waste.
2. This WSRIC waste stream has been revised as indicated by the alpha character suffix. The characterization of the revised waste stream supersedes the previous characterization and, therefore, is also applicable to waste generated prior to the revision. The alpha character will be applied to individual waste packages generated since the revision; however, it will not be assigned to individual waste packages generated before the revision.

Insulation waste is generated by replacement of furnace heating elements, construction, maintenance, and demolition activities within the Protected Area. During these activities insulation material is removed from furnaces, boilers, piping, ceilings and walls, and heating and cooling systems. Fire blankets are replaced or taken out of service when radiologically contaminated or no longer needed in the area. The insulation included in this waste stream was not mixed with a listed hazardous waste and does not exhibit the characteristic of toxicity. Some insulation may be painted; however, based on paint sample data, the paint does not contribute sufficient heavy metal contamination to cause the waste stream to exhibit the characteristic of toxicity for lead or other metals. Insulation waste that did become visibly contaminated with RCRA-hazardous process materials is included in a separate waste stream. Supporting characterization information is provided in the BWR Baseline Book and WSRIC Building Book.[4,8,9,10,11,12,13,14,15]

Visual examination of waste contents at the time of packaging and/or RTR is used to verify that the waste stream does not contain free liquid, explosives, non- radionuclide pyrophoric materials, compressed gasses, or reactive waste. Therefore, this waste stream does not exhibit the characteristics of ignitability (D001), corrosivity (D002), or reactivity (D003).

Beryllium parts were used in the manufacture/assembly of weapons components, and residual beryllium contamination of plutonium parts may have occurred. Insulation debris associated with decontamination and decommissioning of gloveboxes and equipment utilized for these operations may have been contaminated with beryllium; therefore, trace quantities of beryllium may be present in the waste stream. Any beryllium present is as a contaminant of the process and not as unused commercial chemical product and, therefore, is not a P015-listed waste.[4,11,13,15]

Headspace gas sampling and analysis did not detect any hazardous waste VOCs in which the 90% upper confidence limit exceeded the regulatory threshold limit (RTL), which confirms the nonhazardous acceptable knowledge characterization.[16]

6.11.6 Transportation

The payload containers in the waste stream must also comply with the TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) requirements. Flammable volatile organic compounds (VOCs) were not identified in this waste stream based on the descriptions in the *BWR Baseline Book* and *WSRIC Building Books*. Therefore, flammable VOCs in the payload container headspace are not expected to exceed 500 ppm. [4,8,9,10,11,12,13,14]

6.11.7 Radionuclides

Table 6.11-4 presents the radionuclides potentially present in TRU Insulation Debris Waste. [3]

Table 6.11-4, Insulation Debris Waste Radionuclides

IDC	Radionuclides[1]
334	WG Pu, Am-241, DU, EU, Np-237
438	WG Pu, Am-241, DU, EU, Np-237

Key:
WG Pu weapons-grade plutonium
Am-241 americium-241
DU depleted uranium
EU enriched uranium
Np-237 neptunium-237

Notes:

1. Am-241 is indicated only for IDCs (unless noted otherwise) in which americium operations were performed (e.g., molten salt extraction). Am-241 is not indicated if it is expected to be present only due to plutonium-241 decay.

6.11.8 References

1. DOE 1999. TRUPACT-II Content Codes (TRUCON), Revision 12. DOE/WIPP 89-004.

2. DOE 1995. Transuranic Waste Baseline Inventory Report, Revision 2. DOE/CAO-95-1121.

3. RFETS 2002 RFETS TRU Waste Acceptable Knowledge Supplemental Information. RF/RMRS-97-018, Revision 10.

4. RFETS 2002. Backlog Waste Reassessment Baseline Book, Waste Form 53 Fire Blanket and Insulation.

5. Waste and Environmental Management System (WEMS) database.

6. WASTREN 2003. Interoffice Memorandum from Vivian S. Sendelweck to Waste Records Center. VSS-001-2003. January 7.

7. WASTREN 2002. Interoffice Memorandum from Vivian S. Sendelweck to Jeff Harrison. VSS-034-2002. December 26.

8. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 371, Version 7.0.

9. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 374, Version 7.0.

10. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 440 Storage, Version 7.0.

11. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 707, Version 7.0.

12. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 771, Version 7.0.

13. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 776_777, Version 7.0.

14. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 779, Version 7.0.

15. RFETS 2002. Waste Stream and Residue Identification and Characterization, D&D, Version 7.0

16. Tenera 2002. RFETS Interoffice Memorandum from Thomas R. Gatliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report for Waste Stream Profile RF011.01 (TRU Insulation Debris Waste) Lot 1, TRG-161-02. December 17.

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RFETS INTEROFFICE CORRESPONDENCE

DATE: December 17, 2002

TO: Eric L. D'Amico, TRU Waste Programs, Bldg. 460, x5362

FROM: TRG Thomas R. Gatliffe, TRU Waste Programs, Statistical Applications, Bldg. 460, x6548

SUBJECT: HEADSPACE GAS ANALYSIS DATA EVALUATION REPORT FOR WASTE STREAM PROFILE RF011.01 (TRU INSULATION DEBRIS WASTE) LOT 1 - TRG-161-02

This letter forwards the *Statistical Headspace Gas Analysis Data Evaluation Report* for lot 1 of waste stream profile (WSP) RF011.01 (TRU Insulation Debris) as requested by your memorandum of December 16, 2002; Serial ELD-093-02.

One of the reported 30 volatile organic compounds (VOCs) exhibited sufficient detectable concentrations that allowed valid calculation of an Upper 90% Confidence Limit (UCL_{90}) value for the mean concentration and determination of required minimum sample sizes as specified in Table IV.D.1 of the Waste Isolation Pilot Plant, Hazardous Waste Permit, Waste Analysis Plan (WIPP-WAP). Five other VOCs were detected in only 1 or 2 of the 47 samples. Detection of so few concentration values does not support reliably valid calculation of required sample size or UCL_{90}. All of the remaining 24 VOCs exhibited no samples with any reliably detectable concentrations and could not support calculation of either required sample sizes or UCL_{90} values.

Based upon the results of the analyses, sufficient samples were taken to support adequate characterization of headspace gas for the lot and, because all calculable UCL_{90} values were less than the corresponding Program Required Quantitation Limit values, statistical sampling of headspace gas has been demonstrated to be effective for WSP RF011.01. The detailed analyses supporting these findings are contained in the attached formal report.

Please feel free to contact me if further information is needed.

Attachments: One (1), as stated

Statistical Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile RF011.01 Lot 1 TRU Insulation Waste at Rocky Flats Environmental Technology Site

Prepared by: Thomas R. Gatliffe, Environmental Statistician
Tenera Rocky Flats, LLC

For: Kaiser-Hill TRU Waste Programs

December 17, 2002

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